

## *Perennial pepperweed* (*Lepidium latifolium*)

**Description:** Perennial pepperweed produces stems from 3 to 6 feet tall. Mature plants produce numerous erect, sometimes branching, semi-woody stems that originate from large, interconnected creeping roots. Roots can be herbaceous or form semi-woody crowns. Herbaceous roots are often creeping and are responsible for localized spread. Foliage is waxy, smooth and hairless, dark green to blue or grayish green in color with a prominent whitish mid-vein. Leaves are alternate, basal leaves lance shaped up to 12" with long stalks. Stem leaves are smaller with short stalks. Tiny, white 4-petaled flowers bloom in terminal clusters from June to September. In the winter, large stands of dense, woody biomass are left standing, accumulating a thick layer of debris.

**Impacts:** Perennial pepperweed is an aggressive invasive plant that can displace native or desired vegetation. It is also one of the most difficult invasive plants to remove because most non-chemical methods have little impact on controlling this weed once it has become established. Perennial pepperweed is extremely adaptable; it tolerates salty/wet soils, salt marshes and tidelands, pastures, roadsides, cropland, as well as riparian areas, ditches, floodplains, and wetlands.

Spread is primarily from underground roots and root fragments, which can float in water for long periods and still sprout. The extensive root system allows the plants to successfully out-compete native species for water and nutrients. But, because the roots do not hold soil well, pepperweed infestations can destabilize river and stream banks and increase soil erosion.

Infestations can also produce over 6.4 billion seeds per acre annually. Seeds are spread by water, machinery, animals, and people. Fortunately, perennial pepperweed seeds do not appear to be viable in the soil for long periods of time.

**Control Options:** Thurston County's Integrated Pest Management emphasizes cultural, biological, and manual control methods to keep pests and vegetation problems low enough to prevent damage. The goal of Thurston County's IPM is to minimize the use of pesticides by utilizing and providing information about the most effective control options that are available and practical.

### ► Cultural / Habitat

A key element in Integrated Pest Management is preventing infestations. Perennial pepperweed is commonly sold in dry flower arrangements, but these commercial flowers are treated to prevent seed viability. Do not collect pepperweed flowers or plant material from the wild because it will likely lead to seed dispersal and new infestations. Also, wash down boots and shoes, tools, vehicles and pets after visiting parks, forests or other areas where there is perennial pepperweed.

### ► Manual / Mechanical

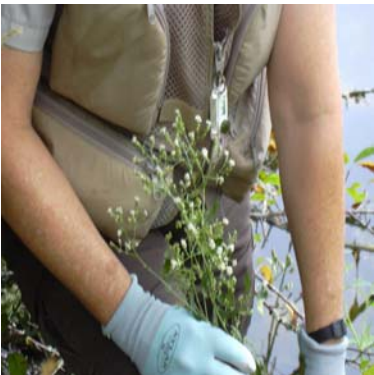
Hand pulling has been used in situations where only a few plants are present, (relatively new infestations). It is most effective in moist, loose soils where a slow and steady pulling action will remove 6 to 8 inches or more of root. This is not a long-term control solution, since new plants will sprout from remaining root fragments. Hand-pulled areas must be monitored frequently and new growth pulled as soon as it appears. All plant material removed should be bagged carefully and deposited at a landfill. This is a labor-intensive method that is recommended when herbicide use is not desired.

### ► Biological

There are currently no biological control methods available for controlling perennial pepperweed.



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## ► Chemical Techniques

**Aquatic / Riparian Applications:** Perennial pepperweed often grows near streams, ditches and salt-water estuaries. If there is a chance for your herbicide to get into a water body, the use of an herbicide formulated for aquatic settings is required. **Aquatic herbicides are restricted for use in Washington State to licensed applicators only.** Herbicides that have been shown to be effective in controlling Perennial pepperweed at aquatic infestation sites include **glyphosate** (Aquamaster™), and **imazapyr** (Habitat™). Because of the difficulty in controlling these sites, you may wish to contact a licensed applicator to develop a control plan.



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**Terrestrial Applications:** Products containing the active ingredient glyphosate are also effective for controlling Perennial pepperweed in terrestrial (dry) environments. Several products containing glyphosate have been reviewed and are considered “low in hazard” by Thurston County’s pesticide review process.

**Thurston County has observed that most ready-to-use, pre-mixed products do not contain sufficient active ingredients to be as effective as concentrated products that are then mixed with water to create a specific finished concentration. The following instructions are for products containing 41% glyphosate which will be mixed down to a specified dilution rate. Be sure to read your label carefully, and make adjustments to rates accordingly.**

### Foliar applications of **glyphosate** (ROUNDUP PRO™):

- Using a spot application, spray each plant thoroughly on the stems and leaves, enough to be wet but not dripping. Spot application means the herbicide is applied only to the Perennial pepperweed plants, and not on the surrounding plants or soil. A 2% glyphosate solution (after mixing for use) is necessary to control Perennial pepperweed. Follow label directions for mixing product to application strength.
- Glyphosate is non-selective, and will injure any plants that it comes in contact with, including grass.
- Keep people and pets off treated areas until spray solution has dried.

Products containing the active ingredient imazapyr (Habitat® and Arsenal®), are considered “moderate in hazard” by Thurston County’s pesticide review process for the potential for chemical mobility and persistence and are a second choice for chemical control.

### Foliar applications of **imazapyr** (Habitat®), (Arsenal®)

- Licensed applicators are required to use this product.
- Spot applications with imazapyr products are effective.
- Imazapyr is non-selective, and will injure any plants that it comes in contact with, including grass.
- Keep people and pets off treated areas until spray solution has dried.
- Do not use on lawns, walks, driveways or similar areas where roots of desirable vegetation may extend and be exposed to potential injury.

**Timing:** The most effective time to treat perennial pepperweed is when the plants are at bud to early bloom stage. In established infestations, woody stalks from previous growing seasons will need to be removed prior to herbicide applications in order to achieve effective coverage. After treating with glyphosate, monitor and spray any re-growth in the fall to improve effectiveness.

**READ AND FOLLOW ALL LABEL DIRECTIONS AND RESTRICTIONS.** Obey all label precautions and safety measures. Always use personal protective equipment that includes coveralls, waterproof gloves, shoes plus socks, and protective eyewear. Use of brand names does not connote endorsement and is for reference only; other formulations of the same herbicides may be available under other names. Information provided is current as of the date of the prescription. Pesticide product registration is renewed annually and product names and formulations may vary from year to year.

### REFERENCES:

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